

**Kittitas County Ryegrass Facility  
GENERAL LAND APPLICATION PLAN**

**Submitted as an addendum to Kittitas County Ryegrass Facility  
*Application for Coverage*  
*Under the General Permit for Biosolids Management***

**10/26/2015**

**PREFACE**

This document is written in accordance with WAC 173-308, Appendix 4, Minimum Content for a General Land Application Plan. The purpose of this plan is:

- Provide broad information about the geographical area where Kittitas County Ryegrass Facility land applies biosolids;
- Set forth general site selection criteria where new fields can be identified and added to Kittitas County Ryegrass Facility permit coverage;
- Describe general management guidelines for areas receiving biosolids;
- Public Notice procedures for adding new fields to Kittitas County Ryegrass Facility permit coverage.

## 1) GEOGRAPHICAL AREA

The following lists the names of all counties and water resource inventory areas (WRIA) where biosolids may be applied by Kittitas County Ryegrass Facility under their permit coverage:

County	Water Resource Inventory Area(s)	WRIA
Kittitas County	No. 39	

## 2) SITE SELECTION CRITERIA

Kittitas County Ryegrass Facility desires to maximize the beneficial use of the biosolids products we manage. To meet this goal, potential land application sites are selected with a preference for productive soils and for soils that can be substantially improved with biosolids application. Biosolids will be applied to sites managed for:

- Pasture and rangeland;
- Land reclamation sites.

Sites are evaluated on a case by case basis for suitability based on a number of factors including:

- topography/slopes;
- Soils;
- Depth to groundwater;
- Precipitation;
- Zoning;
- Neighboring land use;
- Access and storage.

Site/Soil attributes generally not suitable for land application of biosolids:

- Persistent anaerobic soil conditions;
- Hardpans within 12 inches of the surface;

- Slopes exceeding 40%;
- Sites immediately adjacent to residential areas.

Sites proposed for biosolids application that have a seasonal groundwater depth of less than 3' below the surface will be managed by a *Ground Water Protection Plan* detailed in the *Site Specific Land Application Plan*.

The Washington State Department of Ecology Publication #93-80, *Biosolids Management Guidelines for Washington State* as revised in July 2000, and any subsequent revisions, shall be used as a guide for site selection. Additional site selection and design assistance is provided by University of Washington and Washington State University biosolids researchers, extension agents, or professional soil scientists.

### 3) *SITE MANAGEMENT*

Kittitas County Ryegrass Facility will manage all sites in accordance with Chapter 173-308 WAC, any applicable *Site Specific Land Application Plan(s)*, and all conditions noted in the letter providing Final Coverage under the *General Permit for Biosolids Management*.

### 4) *ADVANCE NOTICE TO THE PERMITTING AUTHORITY FOR NEW OR EXPANDED LAND APPLICATION SITES.*

The following outlines the procedure for proposing a new land application site or expansion of an existing land application site under this General Land Application Plan:

- Advance notice to the Department of Ecology that includes the information contained in WAC 173-308-90003, Appendix 3: Items 1, 2, 7, 8, 9, 12, and 13. This information may be submitted electronically or by hard copy to the regional Biosolids Coordinator.
- Review of the site by Ecology;
- Concurrence of both Kittitas County Ryegrass Facility and Ecology about a land application site details to include, but not be limited to: 1) field size and location, 2) buffers, 3) truck access, 4) biosolids on-site storage, 5) any application restrictions or requirements.

### 5) *ADVANCE PUBLIC NOTICE FOR NEW OR EXPANDED LAND APPLICATION SITES*

When a new land application site or expansion of an existing land application site is proposed, Kittitas County Ryegrass Facility will complete the requirements listed in Section 4 above, *Advance Notice to the Permitting Authority for New or Expanded Land Application Sites*. Subsequent to completion of those requirements, the site may be posted in accordance with WAC 173-308-310(13)(g), (h), (i), (j), and (k).

After the proposed site has been posted for a minimum of 30 days, Ecology shall evaluate any public comments received. Following that evaluation, Ecology shall provide Kittitas County Ryegrass Facility a permitting decision in writing that either approves or denies coverage under the General Permit for Biosolids Management

# SITE-SPECIFIC PLAN FOR LAND APPLICATION OF BIOSOLIDS KITITAS COUNTY

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## GENERAL DESCRIPTION

The purpose of this site specific land application plan is to address the requirements defined in WAC 173-308-310(6) for the land application of the biosolids collected in Kittitas County's Liquid Waste Evaporation Lagoons (LWEL) located at the Ryegrass Landfill. Biosolids in this site-specific plan refers to the material collected in the LWEL, which is not liquid septage.

## BIOSOLID QUALITY

The Kittitas County LWEL Operating Plan (LWEL Plan, January 1995) requires that the material entering the lagoons be non-hazardous/non-dangerous liquid wastewaters or sludge. The material must be solid wastes that are liquid or sludges containing free liquids as defined in WAC 173-304-100 and applicable under WAC 173-104-015 (2) (other than liquid wastes whose discharge or potential discharge is regulated under federal, state or local water pollution permits). Sump and wash pad sludges require laboratory testing by the hauler/generator prior to Kittitas County Solid Waste's acceptance of the septage. No hazardous waste is accepted. Please refer to the LWEL Plan. Toilet waste constitutes less than 25 percent by volume of the septage accepted at the lagoons. Laboratory test results will be submitted to the Kittitas County Solid Waste and remain "valid for disposal" for a period of three years, at which time additional tests may be required. Reports of all liquid wastes entering the LWEL must be submitted to Kittitas County Health Department on a monthly basis. Typical biosolid constituent concentrations in ppm (dry weight basis) are as follows:

Arsenic	<11.5
Cadmium	4.58
Copper	6.18
Lead	66.4
Mercury	2.37
Molybdenum	7.83
Nickel	32.5
Selenium	<0.02
Zinc	1780

### SITE LOCATION AND CHARACTERISTICS

The biosolids application sites are located on 228 acres at the Kittitas County Ryegrass Landfill site, which includes 25-acre landfill. The sites are located in Section 16, Township 17, Range 21, in the vicinity of Ryegrass, approximately 18 miles east of Ellensburg to the south of State Route 10 (old Vantage Highway). The sites are in Kittitas County Water Resource Inventory Area No. 39 and are owned entirely by the County. Refer to Figure 1 for the project map showing the specific application area sites and means of access to the facility. The LWEL are located as shown in Figure 1 and consists of two lagoons.

The designated biosolids application sites have a rolling terrain that generally slopes from about 3 percent to about 10 percent. The climate is arid; rainfall is less than 8 inches per year. The climate is characterized by dry, cold winters and dry, hot summers. Ground water is located several hundred feet below the site surface; there is no active surface water. Stormwater runoff, if any, would flow naturally towards the ravines. The soil is primarily a cobbly loam over Columbia River basalt. The soil is limited by its shallow depth (5 to 20 inches deep) and water holding capacity (0.5 to 2 inches). See Figure 2 for the Soil Conservation Service site map.

The sites are limited by the relatively steep slopes, and shallow soil depth and water holding capacity. The steep slope and shallow water holding capacity limit the site because they increase the risk of runoff and leaching. The shallow depth of soil limits the site by limiting the crop yields. The slope limitation will be overcome by only applying biosolids to areas that are sloped at less than 10 percent. In addition, a 100-foot buffer will be set around the property site and between the land application and any ephemeral stream channels, wells or springs. The buffer will also help counter the increased risk of runoff and leaching due to the shallow water holding capacity. The specific application sites that have been identified have sufficient soil to sustain vegetation. Also, the addition of biosolids will add bulk to the soil and increase its depth.

If the County wants to add additional areas for land application, they will contact the Department of Ecology to discuss the new proposed locations. Ecology may require the County to amend this plan to reflect the new application sites.

### ON-SITE BIOSOLIDS STORAGE

Please refer to the LWEL Plan for the storage management practices of the on-site biosolid storage. The lagoons will be operated in tandem. One lagoon will be used until it becomes completely full. At that time, the liquids from the full lagoon will be pumped and land applied.

The biosolids will be pretreated to remove foreign objects such as glass, plastic, clothing or diapers by requiring any new biosolids to pass through a bar screen prior to entering the ponds.

The results of ground water monitoring at the site are included in Appendix A.

## BIOSOLIDS APPLICATION

### APPLICATION OPTIONS

There are two options for land application of the biosolids. These options include:

- **Option 1.** Mixing the biosolids with cover material to be used for the CDL cover layer,
- **Option 2.** Land applying the biosolids to specific sites identified in this plan (Sites 1, 2 and 3).

The biosolids that are land applied would be applied using spray trucks or injectors, if the content of the suspended solids is sufficiently low so that the equipment would not be clogged. Biosolids would not be injected in pasture areas covered with sagebrush, but may be injected in areas covered by grass or wheat. Land application without tillage would allow the existing vegetation to be maintained. This would help prevent erosion problems that may arise by disturbing the soil or the existing vegetation.

If the biosolids are in a dewatered form, they would be land applied using a manure spreader and tilled or not tilled into the soil depending on the application site. The biosolids applied to application sites where the soil depth is shallow shall not be tilled into the ground. Due to shallow soils and utilities located in the area, biosolids shall not be tilled into the soil if applied to Site 2.

Note that any wheat grown as a result of land application of biosolids shall not be harvested.

### APPLICATION RATES

#### A. NITROGEN REQUIREMENTS

##### 1. NATIVE GRASSES

Wheat, native grasses and sagebrush currently grow at the application site. The native grasses include the following:

Sandberg Bluegrass	Desert Squirreltail
Stiff Sagebrush	Willowweed
Thyme Eriogonum	Hood Phlox
Narrowleaf Goldenweed	Low fleabane
Bottlebrush Squirreltail	Hooker Balsamroot
Rock Eriogonum	
Biscuitroot	
Bluebunch Wheatgrass	

The native vegetation requires about 40 pounds of nitrogen per acre.

### 2. VEGETATION FOR FINAL LANDFILL COVER

The landfill vegetation cover will consist of the following:

Crested Wheatgrass

Hard Fescue "Durar"

Big Bluegrass

Intermediate Wheatgrass

This seed mix will require 35 pounds of nitrogen per acre.

### 3. WHEAT

Wheat requires about 94.5 pounds of nitrogen per acre (assuming about 35 bushels per acre).

## B. APPLICATION RATE CALCULATION

An application rate will be determined by the Land Application Contractor for each of the application options to be used. The rates shall be determined by based on the procedure defined in WAC 1730-308 and *Biosolids Management Guidelines* (Draft Guidelines, DOE, October 1993).

### Options 1,2,

For Options 1, and 2, the Land Application Contractor will need to determine the agronomic rate to apply the biosolids. The agronomic rate depends on the crop nitrogen requirements, the nitrogen available in the soil and regulatory limits for trace element application.

The basic steps are outlined below.

1. Collect Biosolids Data
2. Collect Site Soil Information
3. Estimate Plant-available Nitrogen to be provided by biosolids
4. Calculate the Agronomic Loading Rate

The worksheet in Appendix A is based on information in Chapter 5 of the Draft Guidelines and shall be filled out and submitted to Kittitas County Solid Waste Programs prior to performing any land application. In addition, the Contractor shall prepare a map that shows exactly where the biosolids will be applied. The County shall submit the worksheet and map to the Department of Ecology (DOE) for their approval. Land application shall only occur after approval from DOE.

The biosolids shall be lime stabilized to reduce pathogens and vector attraction according to WAC 173-380-170 (3)(b) (v) Class B - Alternative 2 and WAC 173-380-180 (5). The Land Application Contractor shall be responsible for preparing a complete plan, and providing all materials and equipment for lime stabilization as well as biosolids removal from the lagoons, and land application.

In addition, the Contractor shall be responsible for determining the amount of lime needed to stabilize the biosolids.

The land application contractor shall be required to monitor the lime stabilization process to ensure the pH is 12 or greater for 2 hours and 11.5 or greater after an additional 22 hours after the application of the lime. No biosolids will be allowed to remain on the surface 1 hour after application, livestock shall not be allowed to graze for 30 days, the general public is not allowed access to the site and vegetation growing on the site will not be harvested.

Land application of biosolids will occur once per year. Typically, land application will occur in the spring or fall during about a 3 to 4 week period. If additional seed is sown, it will not be sown until at least 2 weeks after the application. The area of coverage would depend on the vegetation growing at the application site. If the biosolids is applied at the agronomic rates defined above, no additional applications will be made to that area for at least one year.

#### LAND APPLICATION EQUIPMENT

The biosolids will be pumped out of the LWEL or removed using a backhoe or front-end loader.

The application equipment may vary, but will consist of equipment able to apply the biosolids uniformly and be suitable for the terrain, and crops. It is anticipated that a tanker/spray truck with dual splash plates or a manure spreader will be used for surface applications. Sludge injection equipment would be used if the biosolids were to be injected.

Field applications will be checked against the calculated application rates by measuring an application area and determining the quantity applied. The actual tons applied are compared with the calculated application rate. Adjustments to equipment will be made to meet the calculated application rate as closely as possible. Given the type of application and the nature of the material, operations strive for an accuracy rate of plus or minus about 15 percent. This is consistent with land application of other bulk fertilizers.

#### PUBLIC ACCESS AND NOTIFICATION

The land application site is entirely fenced-enclosed, limiting access to the site. Signs will be posted at the entrance to the site that prohibits the general public from entering the property.

Notification will be given to the grazing leaseholders prior to any land application. No animals will be allowed to graze for 30 days after the land application.



## SITE MANAGEMENT AND ADMINISTRATION

### CONTINGENCY PLAN

In order to ensure the biosolids are applied in a consistent manner and will be absorbed into the soil, the biosolids will not be applied during periods of prolonged rainfall, snow or frozen ground. In addition, the application of biosolids will be limited to the period between March 1 and November 1.

In case of spills, dike rupture, severe runoff or other similar emergency, the following people will be contacted:

Agency or Person	Work Telephone	Home Telephone	Cell Telephone
Kittitas County Solid Waste	(509) 962-7542		
Patti Johnson	(509) 962-7070	(509) 962-4002	(509) 929-0022
<del>Clinton VanDeVenter</del> Cody Cupp	(509) 962-7577		(509) 306-5008
Kittitas County Environmental Health Director	(509) 962-7698		
John Wolpers	(509) 962-7698		(509) 899-3853
Department of Ecology			
Wendy Neet	(509) 454-7872		

### RESPONSIBILITIES

The transportation and delivery of biosolids to the lagoons is performed by private haulers and pumpers as described in the LWEL Plan. The private haulers and pumpers are responsible for meeting any requirements for transporting and delivering the biosolids to the LWEL. Kittitas County is responsible for the biosolids storage, biosolids application, site management and record keeping, soil incorporation of the biosolids, sampling for environmental and public health monitoring, and reporting to regulatory agencies.

### ENVIRONMENTAL AND PUBLIC HEALTH MONITORING

Kittitas County will periodically monitor the site for compliance with this plan.

Please refer to the LWEL Plan for an explanation of monitoring of the biosolids entering the LWEL.

Lime stabilized biosolids will be monitored to ensure that the pH remains at 12 or more for at least 2 hours and, if the biosolids are not injected, 11.5 or greater after 12 hours before land application. The Land Application Contractor shall be responsible for monitoring the lime stabilization. The Contractor shall supply test reports to the County.

## Application for Coverage Under the General Permit for Biosolids Management

Notice is hereby given that Kittitas County has submitted an application to the Department of Ecology to obtain coverage under the General Permit for Biosolids Management. A copy of the general permit can be found at: <http://www.ecy.wa.gov/programs/swfa/biosolids/pdf/BiosolidsManagement.pdf>

Washington State Department of Ecology has reviewed documentation previously submitted in accordance with the State Environmental Policy Act (SEPA) and has determined that for the purpose of this proposal, SEPA requirements have been satisfied.

Ryegrass Facility applies biosolids as a soil amendment. Land application sites are located at 25900 Vantage Highway, Ellensburg WA 98926. Our permit application includes Site Specific Land Application Plans that address the management of our biosolids at these sites. Our permit application includes a General Land Application Plan that addresses how future land application sites will be identified and managed. Proposals for new sites will be consistent with our General Land Application Plan, and additional environmental review will be completed if needed. Public notices at the proposed new sites will include a 30 day comment period, and signs will be posted around the proposed sites.

Any person who wants to comment on this proposal or to request a public hearing or meeting must do so, in writing. Comments or request must be submitted to Wendy Neet, by November 30, 2015.

If you wish to be included on an Interested Parties List to receive notification of activities related to this project, please notify, in writing, Patti Johnson. Kittitas County Ryegrass Facility will provide written confirmation by certified mail, return receipt requested, to each interested person or organization that their name has been placed on the list.

Contact persons to receive questions, comments, or requests:

Wendy Neet Ecology –W2R Eastern WA Septage Coordinator 1250 W. Alder St Union Gap, WA 98903 9509)454-7872	Holly Myers Kittitas County Environmental Health 507 N. Nanum St. Ste 102 Ellensburg, WA 98926 (509)962-7515	Patti Johnson Kittitas County Solid Waste 925 Industrial Way Ellensburg, WA 98926 (509)962-7542	Gwen Clear Ecology CRO SEPA Contact 1250 W. Alder St. Union Gap, WA 98903 (509)515-2012
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